

Listing of the Claims:

Claim 1 (Previously Presented): A phase shifter, comprising:

an input port for receiving a radio frequency (RF) signal;

a power dividing means for dividing the RF signal into a first divided signal of which phase is to be varied and a second divided signal having a fixed phase value;

a first output port for outputting the second divided signal having the fixed phase value;

a phase shift means for dividing the first divided signal into a third divided signal and a fourth divided signal wherein the third divided signal and the fourth divided signal move in opposite directions and for shifting phase of the third divided signal and the fourth divided signal based on a difference in a path length of the third divided signal and the fourth divided signal, to thereby generate phase-shifted signals;

a phase delay means for delaying the third divided signal and the fourth divided signal based on the phase-shifted signals; and

at least two second output ports connected to the phase delay means, for outputting the phase-shifted signals.

Claim 2 (Currently Amended): The phase shifter as recited in claim 1, wherein the power dividing means includes:

a first induction unit electrically connected to the first output port, wherein the first induction unit is a copper plate having a semicircle shape formed on the same a common plane as the input port and the first induction unit transmits the first divided signal to the first output port;

a second induction unit wherein the second induction unit is a copper plate having a ring shape formed on the same a common plane as the phase shift means and the second induction unit transmits the first divided signal to the phase shift means; and

a dielectric located between the first induction unit and the second induction unit.

Claim 3 (Original): The phase shifter as recited in claim 2, wherein the power dividing means controls power energy of the first divided signal and the second divided signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 4 (Previously Presented): The phase shifter as recited in claim 2, wherein the phase delay means is a copper plate having a circle arc shape and is formed on the same plane with a plane of the input port; and

wherein the phase shift means varies a path length of the RF signal fed into the phase delay means by rotating clockwise or counterclockwise about a pivot point located on the center of the circle arc.

Claim 5 (Previously Presented): The phase shifter as recited in claim 4, wherein a dielectric is located between the phase delay means and the phase shift means, to thereby transfer power by electromagnetic bond.

Claim 6 (Previously Presented): The phase shifter as recited in claim 5, wherein the phase delay means includes a plurality of copper plate patterns each having a different

radius formed on ~~the same~~ a common plane of the phase delay means and an arc-shaped comb shape, and generates phase-shifted signals based on angular degrees by which the phase shift means rotates.

Claim 7 (Original): The phase shifter as recited in claim 1, wherein the number of the second output ports is four.

Claim 8 (Original): The phase shifter as recited in claim 1, wherein the number of the second output ports is eight.

Claim 9 (Original): The phase shifter as recited in claim 4, wherein the phase shift means controls power energy outputted from the third divided signal and the fourth divided signal in proportion to the length and width of the phase shift means.

Claim 10 (Currently Amended): A phase shifter, comprising:

an input port for receiving a radio frequency (RF) signal;
a power dividing means for dividing the RF signal into a first divided signal and a second divided signal having a fixed phase value; and
an output port for outputting the second divided signal having the fixed phase value;

wherein the first divided signal is divided into at least two signals, phase of the at least two signals [[are]] being shifted based on a path length of the at least two signals,
the power dividing means includes:

a first induction unit electrically connected to the output port;
a dielectric located on the first induction unit; and
a second induction unit located on the dielectric.

Claim 11 (Currently Amended): The phase shifter as recited in claim 10, wherein the power dividing means includes:

~~a first induction unit electrically connected to the output port, the first induction unit having has~~ a semicircle shape;
~~a dielectric located on the first induction unit; and the~~
~~a second induction unit having has~~ a ring shape ~~located on the dielectric.~~

Claim 12 (Previously Presented): The phase shifter as recited in claim 11, wherein the power dividing means controls power energy of the first divided signal and the second divided signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 13 (Previously Presented): A phase shifter, comprising:

a phase shift unit rotatable at a pivot point and feeding a first radio frequency (RF) signal; and
a phase delay unit formed in an arc-shaped comb for dividing the first RF signal into two signals, shifting phases of the divided signals based on a path length, and delaying the divided signals based on the phases.

Claim 14 (Previously Presented): The phase shifter of claim 13, further comprising
an input port for receiving an input radio frequency (RF) signal;
a power dividing means for dividing the input RF signal into the first RF signal
and a second RF signal having a fixed phase value and;
a first output port for outputting the second RF signal having the fixed phase
value; and
at least two second output ports connected to the phase delay unit, for outputting
the divided signals.

Claim 15 (Previously Presented): The phase shifter of claim 14, wherein the power
dividing means includes:

a first induction unit electrically connected to the first output port, wherein the
first induction unit has a semicircle shape;
a dielectric located on the first induction unit; and
a second induction unit having a ring shape and located on the dielectric.

Claim 16 (Previously Presented): The phase shifter as recited in claim 15, wherein the
power dividing means controls power energy of the first RF signal and the second RF
signal by varying the length of the semicircular arc of the first induction unit and the size
of the second induction unit.

Claim 17 (Previously Presented): The phase shifter as recited in claim 13, wherein a
dielectric is located between the phase delay unit and the phase shift unit, to thereby

transfer power by electromagnetic bond.

Claim 18 (Previously Presented): A phase shifter, comprising:

a phase shift unit rotatable at a pivot point and feeding a radio frequency (RF) signal; and

a phase delay unit for dividing the RF signal into two signals and shifting phases of the divided signals based on a path length.

wherein, the phase delay unit includes a arc-shaped conduction line and a plurality of open stubs extending from the arc-shaped conduction line.

Claim 19 (Previously Presented): The phase shifter of Claim 18, wherein the open stubs slow wave propagation to thereby increase phase-shifting range.

Claim 20 (Previously Presented): The phase shifter of claim 18, further comprising

an input port for receiving an input radio frequency (RF) signal;
a power dividing means for dividing the input RF signal into the first RF signal and a second RF signal having a fixed phase value and;

a first output for outputting the second RF signal having the fixed phase value;
and

at least two second output ports connected to the phase delay unit, for outputting the divided signals of which phases are shifted.

Claim 21 (Previously Presented): The phase shifter of claim 20, wherein the power dividing means includes:

- a first induction unit electrically connected to the first output port, wherein the first induction unit has a semicircle shape;
- a dielectric located on the first induction unit; and
- a second induction unit having a ring shape and located on the dielectric.

Claim 22 (Previously Presented): The phase shifter as recited in claim 21, wherein the power dividing means controls power energy of the first RF signal and the second RF signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 23 (Previously Presented): The phase shifter as recited in claim 18, wherein a dielectric is located between the phase delay unit and the phase shift unit, to thereby transfer power by electromagnetic bond.

Claim 24 (Canceled).

Claim 25 (Currently Amended): The phase shifter as recited in claim 1, wherein the power dividing means includes:

- a first induction unit electrically connected to the first output port, wherein the first induction unit is a plate having a semicircle shape formed on the same a common plane as the input port and transmits the second divided signal to the first output port;

a second induction unit, wherein the second induction unit is a plate having a ring shape formed on ~~the same~~ a common plane as the phase shift means and transmits the first divided signal to the phase shift means; and

a dielectric located between the first induction unit and the second induction unit.

Claim 26 (Previously Presented): The phase shifter as recited in claim 25, wherein the power dividing means controls power energy of the first divided signal and the second divided signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 27 (Previously Presented): The phase shifter as recited in claim 1, wherein the phase delay means is a plate having a circle arc shape and is formed on the same plane with a plane of the input port; and

wherein the phase shift means varies a path length of the RF signal fed into the phase delay means by rotating clockwise or counterclockwise about a pivot point located on the center of the circle arc.

Claim 28 (Previously Presented): The phase shifter as recited in claim 27, wherein a dielectric is located between the phase delay means and the phase shift means, to thereby transfer power by electromagnetic bond.

Claim 29 (Previously Presented): The phase shifter as recited in claim 28, wherein the phase delay means includes a plurality of plate patterns each having a different radius formed on the same plane of the phase delay means and an arc-shaped comb shape, and generates phase-shifted signals based on angular degrees by which the phase shift means rotates.

Claim 30 (Previously Presented): The phase shifter as recited in claim 27, wherein the phase shift means controls power energy outputted from the third divided signal and the fourth divided signal in proportion to the length and width of the phase shift means.